



Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Compressors/Engines ☐
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☒
Wells ☐
Other ☐

Perform Leak Repair During Pipeline Replacement

Applicable sector(s):

☐ Production ☐ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Southern Natural Gas Company

Other related PROs: Use Clock Spring® Repair

Technology/Practice Overview

Description

Operating pipelines remain in service for long periods of time, during which they experience internal corrosion and significant pressure, thermal and mechanical stresses. Corrosion debris will often accumulate in valve seats, preventing tight closure and causing gas leakage when the valves are closed to isolate pipeline sections for repair. Pipeline replacement or repair projects afford rare opportunities to inspect and maintain both internal and external components on pipeline valves.

To cost effectively reduce gas losses, one partner reports inspecting and repairing leaking components in the vicinity of ongoing pipeline repair or replacement projects. Other mainline valves need to be closed to isolate a valve for leak repairs, clean valve seats, replace valve-stem packing, or remove and replace entire valves.

Principal Benefits

Reducing methane emissions was:

☐ A primary justification for the project ☒ An associated benefit of the project

Operating Requirements

Balloon seals may need to be inserted to isolate a valve for maintenance.

Applicability

This practice applies to all pipeline repair and replacement projects.

Methane Savings

2,500 Mcf/yr

Costs

Capital Costs (including installation)
None

Operating and Maintenance Costs (Annual)
☐ < \$100 ☒ \$100-\$1,000 ☐ > \$1,000

Payback (Years)

☐ 0-1 ☒ 1-3 ☐ 3-10 ☐ > 10

Methane Emission Reductions

The amount of avoided emissions is based on the typical leak rates through gate valves (130 Mcf/yr) and gate valve stem packing (120 Mcf/yr) reported in EPA's "Lessons Learned for Directed Inspection and Maintenance at Gate Stations and Surface Facilities." The partner reported methane emission reductions of 1,700 Mcf by repairing 12 leaking couplings and 6 valves.

Economic Analysis

Basis for Costs and Savings

The methane savings of 2,500 Mcf/yr were associated with repairing ten leaking pipeline gate valves per year, including replacing valve stem packing.

Discussion

This practice generally has a good payback. The economic analysis is based on 2 operators spending 4 hours per person (at \$25 per hour) to test two gate valves for leakage, and repair one. The time for traveling to the pipeline is assumed part of the pipeline project. The value of gas saved by repairing the valve is incidental to safety issues associated with leaking pipeline valves. There is no capital equipment required.